

58843.US

REMARKS

Claims 1-20 are in the case. Claims 1-2, 11, 17, and 19-20 are rejected under 35 USC § 102 over USAN 2002/0035435 to Ninomiya et al. Claims 3-5 are rejected under 35 USC § 103 over Ninomiya et al. in view of USPN 5,502,306 to Meisburger et al. Claims 6 and 12 are rejected under 35 USC § 103 over Ninomiya et al. in view of USAN 2004/0122859 to Gavra et al. Claims 7-10, 13-16, and 18 are rejected under 35 USC § 103 over Ninomiya et al. in view of USPN 6,167,150 to Michael et al. Claims # have been amended and claims # are hereby cancelled. No new matter has been introduced by the amendments, which are supported by the disclosure of the original claims and the specification. Reconsideration and allowance of the claims are respectfully requested.

CLAIM REJECTIONS UNDER §102

Claims 1-2, 11, 17, and 19-20 are rejected under 35 U.S.C. 102 as being unpatentable over Ninomiya et al. Independent claim 1 claims, *inter alia*, a method for analyzing defects on a substrate by inspecting the substrate to detect the *defects*, identifying the defects by *location*, analyzing the defects to detect *extended objects*, and analyzing the *extended objects for repetition* across the substrate. Thus, in the present method as claimed, defects are found and positions of the defects are identified, then the defects are analyzed to detect something besides the defects, which something is the extended object, and then a search is made for repetition of the extended objects across the substrate.

Ninomiya et al. do not describe such a process. First, Ninomiya et al. do not look for extended objects within the defects. The office action states that Ninomiya et al. describe analyzing the extended objects for repetition in paragraph 77, and that a description of analyzing the defects to detect the extended objects is in paragraph 96. Applicants note that Ninomiya et al. provide a sequential description of their process, and the steps described in paragraph 77 occur before the steps that are described in paragraph 96. However, the office action states that the extended objects found in paragraph 96 are used in paragraph 77. This begs the question, how can an extended object be used before it is found? The answer, of course, is that an extended object, or any other item for that

58843.US

matter, cannot be used before it is created or found. The explanation in the office action is, therefore, internally inconsistent, and thus is flawed at some point.

The answer to this paradox is that Ninomiya et al. do not find extended objects at all, and the examiner has mislabeled something within Ninomiya et al. as an extended object. Extended objects are defined in the present specification with the statement that "extended objects are patterns of individual defects, such as clusters or signatures," (paragraph 19). Ninomiya et al. do not ever detect such extended objects. Therefore, Ninomiya et al. cannot look for repeating extended objects, because they never look for extended objects in the first place.

However, to push the differences even further, Ninomiya et al. do not even look for repeating defects. The repeating patterns described by Ninomiya et al. are not repeating defects, but instead are repeating mask patterns on the integrated circuit that are used as references for finding defects. These repeating mask patterns are compared to one another to find defects. However, if the defect itself was repeated from pattern to pattern, it wouldn't even be detected as a defect under the method of Ninomiya et al. Thus, Ninomiya et al. describe a very different method from that as claimed in claim 1.

Thus, claim 1 patentably defines over Ninomiya et al. Reconsideration and allowance of claim 1 are respectfully requested. Dependent claim 2 depends from independent claim 1, and contains additional important aspects of the invention. Therefore, dependent claim 2 patentably defines over Ninomiya et al. Reconsideration and allowance of dependent claim 2 are respectfully requested.

Similar to that as described above in regard to claim 1, claim 11 claims, *inter alia*, a method for analyzing defects on a semiconductor substrate, by optically inspecting the substrate to detect the *defects*, identifying the defects by *location*, analyzing the defects to detect *extended objects*, and analyzing the *extended objects for repetition*.

The deficiencies of Ninomiya et al. in regard to this combination of elements is described above. Thus, claim 11 patentably defines over Ninomiya et al. Reconsideration and allowance of claim 11 are respectfully requested.

Similar to that as described above in regard to claims 1 and 11, claim 17 claims, *inter alia*, an apparatus for analyzing defects on a substrate, with a sensor for inspecting the substrate, a stage for providing relative movement, and a controller for correlating

58843.US

defect information and *position information*, analyzing the correlated defect information and position information to detect *extended objects*, and *analyzing the extended objects for repetition* across the substrate.

The deficiencies of Ninomiya et al. in regard to this combination of elements is described above. Thus, claim 17 patentably defines over Ninomiya et al. Reconsideration and allowance of claim 17 are respectfully requested. Dependent claims 19-20 depend from independent claim 17, and contain additional important aspects of the invention. Therefore, dependent claims 19-20 patentably define over Ninomiya et al. Reconsideration and allowance of dependent claims 19-20 are respectfully requested.

CLAIM REJECTIONS UNDER §103

Claims 3-5 are rejected under 35 USC § 103 over Ninomiya et al. in view of Meisburger et al. Dependent claims 3-5 depend from independent claim 1, and therefore claim *inter alia*, a method for analyzing defects on a substrate by inspecting the substrate to detect the *defects*, identifying the defects by *location*, analyzing the defects to detect *extended objects*, and analyzing the *extended objects for repetition* across the substrate.

The deficiencies of Ninomiya et al. in regard to this combination of elements are described at length above. Meisburger et al. do not compensate for the deficiencies of Ninomiya et al., in that Meisburger et al. also do not describe either one of analyzing defects to detect extended objects or analyzing the extended objects for repetition. Thus, claims 3-5 patentably define over Ninomiya et al. in view of Meisburger et al. Reconsideration and allowance of claims 3-5 are respectfully requested.

Claims 6 and 12 are rejected under 35 USC § 103 over Ninomiya et al. in view of Gavra et al. Dependent claim 6 depends from independent claim 1, and therefore claims *inter alia*, a method for analyzing defects on a substrate by inspecting the substrate to detect the *defects*, identifying the defects by *location*, analyzing the defects to detect *extended objects*, and analyzing the *extended objects for repetition* across the substrate.

The deficiencies of Ninomiya et al. in regard to this combination of elements are described at length above. Gavra et al. do not compensate for the deficiencies of Ninomiya et al., in that Gavra et al. also do not describe either one of analyzing defects to detect extended objects or analyzing the extended objects for repetition. It is noted that

58843.US

Gavra et al. make a different use of the word "signature." As used by Gavra et al., the "signature" is the sum total of all attributes of a substrate, and thus there is a single "signature" for a given substrate. Therefore, there is no analysis of the defects to determine a signature, as the terms are used in the present claims, nor is there any analysis for repetition of a signature across a substrate, because such a concept is not possible as the term is used by Gavra et al. Thus, claim 6 patentably defines over Ninomiya et al. in view of Gavra et al. Reconsideration and allowance of claim 6 are respectfully requested.

Similar to that as described above in regard to claim 6, dependent claim 12 depends from independent claim 11, and therefore claims *inter alia*, a method for analyzing defects on a semiconductor substrate, by optically inspecting the substrate to detect the *defects*, identifying the defects by *location*, analyzing the defects to detect *extended objects*, and analyzing the *extended objects for repetition*.

The deficiencies of Ninomiya et al. in regard to this combination of elements are described at length above. Gavra et al. do not compensate for the deficiencies of Ninomiya et al., in that Gavra et al. also do not describe either one of analyzing defects to detect extended objects or analyzing the extended objects for repetition. Thus, claim 12 patentably defines over Ninomiya et al. in view of Gavra et al. Reconsideration and allowance of claim 12 are respectfully requested.

Claims 7-10, 13-16, and 18 are rejected under 35 USC § 103 over Ninomiya et al. in view of Michael et al. Dependent claims 7-10 depend from independent claim 1, and therefore claim *inter alia*, a method for analyzing defects on a substrate by inspecting the substrate to detect the *defects*, identifying the defects by *location*, analyzing the defects to detect *extended objects*, and analyzing the *extended objects for repetition* across the substrate.

The deficiencies of Ninomiya et al. in regard to this combination of elements are described at length above. Michael et al. do not compensate for the deficiencies of Ninomiya et al., in that Michael et al. also do not describe either one of analyzing defects to detect extended objects or analyzing the extended objects for repetition. Michael et al. describe a "bounding box," but the term is again used in a different context from that as used in the present claims and described in the present application. Michael et al.

58843.US

describe using a "bounding box" to determine the edge of an object of interest, and if there are other objects adjacent the edge of the bounding box of the object of interest, then it is classified as a defect. However, no extended objects are found within the defects, as recited by the present claims, and no repetition of extended objects is looked for. Thus, claims 7-10 patentably define over Ninomiya et al. in view of Michael et al. Reconsideration and allowance of claims 7-10 are respectfully requested.

Similar to that as described above in regard to claims 7-10, dependent claims 13-16 depend from independent claim 11, and therefore claim *inter alia*, a method for analyzing defects on a semiconductor substrate, by optically inspecting the substrate to detect the *defects*, identifying the defects by *location*, analyzing the defects to detect *extended objects*, and analyzing the *extended objects for repetition*.

The deficiencies of Ninomiya et al. in regard to this combination of elements are described at length above. Michael et al. do not compensate for the deficiencies of Ninomiya et al., in that Michael et al. also do not describe either one of analyzing defects to detect extended objects or analyzing the extended objects for repetition. Thus, claims 13-16 patentably define over Ninomiya et al. in view of Michael et al. Reconsideration and allowance of claims 13-16 are respectfully requested.

Similar to that as described above in regard to claims 7-10 and 13-16, dependent claim 18 depends from independent claim 17, and therefore claims *inter alia*, an apparatus for analyzing defects on a substrate, with a sensor for inspecting the substrate, a stage for providing relative movement, and a controller for correlating *defect information* and *position information*, analyzing the correlated defect information and position information to detect *extended objects*, and *analyzing the extended objects for repetition* across the substrate.

The deficiencies of Ninomiya et al. in regard to this combination of elements are described at length above. Michael et al. do not compensate for the deficiencies of Ninomiya et al., in that Michael et al. also do not describe either one of analyzing defects to detect extended objects or analyzing the extended objects for repetition. Thus, claim 18 patentably defines over Ninomiya et al. in view of Michael et al. Reconsideration and allowance of claim 18 are respectfully requested.

58843.US

COMBINATION OF REFERENCES

Furthermore, it is respectfully submitted that the references cited do not support combining the elements as claimed in the present invention. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d (BNA) 1566 (Fed. Cir. 1990) states that the PTO erred in rejecting a claimed invention as an obvious combination of the teaching of prior art references when the prior art provided no teaching, suggestion, or incentive supporting the combination. *See Northern Telecom Inc. v. Datapoint Corp.*, 15 U.S.P.Q.2d 1321, 1323, *In re Geiger*, 2 U.S.P.Q.2D 1276, 1278. *SmithKline Diagnostics, Inc. v. Helena Laboratories Corp.*, 859 F.2d 878, 887, 8 U.S.P.Q.2d (BNA) 1468, 1475 (Fed. Cir.1988) states that one "cannot pick and choose among the individual elements of assorted prior art references to recreate the claimed invention."

Applicants submit that the office action cites references in which certain key words have been found, which key words are similar to the words that are used in the claims of the present application, but these key words do not in all cases even match the concepts that are expressed in the present claims. Further, there is no permissible incentive to make the combinations of the cited references in the manner expressed in the office action. However, even if such a combination could be permissibly made, the present invention as claimed is still not made obvious by the cited combination, because the concepts of the matched key words do not align with the concepts expressed in the claims.

There is nothing in the prior art cited to lead a person of ordinary skill to design an apparatus like that of the present invention, other than the hindsight knowledge of this invention. The office action recites certain generalized benefits (realized in hindsight after considering the invention) as motivation for the combination of the references. However, these generalized motivations do not make obvious the combination of the references to produce the claimed invention. Only after considering the invention is it understood that combining the references (and adding a great deal more) tends to produce the motivating elements.

This, however, does not satisfy Section 103. The motivation to combine references cannot come from the invention itself. *See In re Oetiker*, 24 U.S.P.Q.2D 1443, 1446. The claims of the present application appear to have been used as a frame, and

58843.US

individual parts of separate prior art references were employed to recreate a facsimile of the claimed invention. See *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 312. There is no explanation of what there was in the prior art that would have caused those skilled in the art to combine the references.

The examiner has the burden to show some teaching or suggestion in the references to support their use in the particular claimed combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 5 U.S.P.Q.2D at 1438-1439. In the absence of such, applicants respectfully suggest that the references are improperly combined.

CONCLUSION

Applicants assert that the claims of the present application patentably define over the prior art made of record and not relied upon for the same reasons as given above. Applicants respectfully submit that a full and complete response to the office action is provided herein, and that the application is now fully in condition for allowance. Action in accordance therewith is respectfully requested.

In the event this response is not timely filed, applicants hereby petition for the appropriate extension of time and request that the fee for the extension be charged to deposit account 12-2355. If other fees are required by this amendment, such as fees for additional claims, such fees may be charged to deposit account 12-2252. Should the examiner require further clarification of the invention, it is requested that s/he contact the undersigned before issuing the next office action.

Sincerely,

LUEDEKA, NEELY & GRAHAM, P.C.

By: 

Rick Barnes, 39,596

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